

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (Previously Presented): A method for ranging in a radio frequency communications system that includes a satellite configured to support two-way communication, the method comprising:

selecting a transmission channel class that includes at least one of transmission rate, modulation scheme, and coding scheme;

transmitting a ranging message according to the selected transmission channel class over a channel;

selectively modifying the transmission channel class based upon characteristics of the channel; and

receiving a request to perform re-ranging based upon re-ranging criteria that includes at least one of location of the satellite, and the characteristics of the channel.

Claim 2 (Previously Presented): The method according to claim 1, further comprising:

storing parameters associated with the transmission of the message over the channel, the parameters including at least one of power information and timing information associated with the transmission of the message.

Claim 3 (Previously Presented): The method according to claim 1, wherein the transmitting step and the modifying step are iteratively performed to achieve an improved transmission class.

Claim 4 (Previously Presented): The method according to claim 1, wherein the modifying step is performed periodically in response to a change in the characteristics of the channel.

Claims 5-6 (Canceled).

Claim 7 (Previously Presented): The method according to claim 1, further comprising:  
altering the transmission channel class for load balancing.

Claim 8 (Previously Presented): A terminal apparatus for supporting ranging over a radio frequency communications system that includes a satellite that supports bi-directional communication, the apparatus comprising:

a transmit unit that is configured to transmit a ranging message according to a selected transmission channel class that includes at least one of transmission rate, modulation scheme, and coding scheme over a channel;

means for selectively modifying the transmission channel class based upon characteristics of the channel; and

a receive unit configured to receive request to perform re-ranging based upon re-ranging criteria that includes at least one of location of the satellite, and the characteristics of the channel.

Claim 9 (Previously Presented): The apparatus according to claim 8, further comprising:  
memory configured to store parameters associated with the transmission of the message over the channel, the parameters including at least one of power information and timing information associated with the transmission of the message.

Claim 10 (Previously Presented): The apparatus according to claim 8, wherein the transmission rate is increased to a value that is sustainable by the channel.

Claim 11 (Previously Presented): The apparatus according to claim 8, wherein the transmission rate is periodically modified in response to a change in the characteristics of the channel.

Claims 12-13 (Canceled).

Claim 14 (Currently Amended): The apparatus according to claim 8, wherein the transmission channel class is altered for load balancing;  
a receive unit configured to receive a request to perform re-ranging for load balancing.

Claim 15 (Previously Presented): A computer-readable medium carrying one or more sequences of one or more instructions for ranging in a radio frequency communications system that includes a satellite configured to support two-way communication, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

selecting a transmission channel class that includes at least one of transmission rate, modulation scheme, and coding scheme;

initiating transmission of a ranging message according to the selected transmission channel class over a channel;

selectively modifying the transmission channel class based upon characteristics of the channel; and

receiving a request to perform re-ranging based upon re-ranging criteria that includes at least one of location of the satellite, and the characteristics of the channel.

Claim 16 (Previously Presented): A computer-readable medium according to claim 15, wherein the one or more processors further perform the step of:

storing parameters associated with the transmission of the message over the channel, the parameters including at least one of power information and timing information associated with the transmission of the message.

Claim 17 (Previously Presented): The computer-readable medium according to claim 15, wherein the transmitting step and the modifying step are iteratively performed to achieve an improved transmission class.

Claim 18 (Previously Presented): The computer-readable medium according to claim 15, wherein the modifying step is performed periodically in response to a change in the characteristics of the channel.

Claims 19-20 (Canceled).

Claim 21 (Previously Presented): The computer-readable medium according to claim 15, wherein the one or more processors further perform the step of:  
altering the transmission channel class for load balancing.

Claim 22 (Previously Presented): A method for ranging in a radio frequency communications system that includes a satellite configured to support two-way communication, the method comprising:

- receiving a ranging message from a terminal over a channel associated with a transmission channel class that includes at least one of transmission rate, modulation scheme, and coding scheme;

- performing ranging measurements corresponding to the message;

- outputting a ranging response message based upon the ranging measurements, the ranging response being transmitted to the terminal, wherein the terminal selectively modifies the transmission channel class based upon the ranging response; and

- transmitting a request to perform re-ranging based upon re-ranging criteria that includes at least one of location of the satellite, and the characteristics of the channel.

Claim 23 (Previously Presented): The method according to claim 22, wherein the terminal stores parameters associated with the transmission of the message over the channel, the parameters including at least one of power information and timing information associated with the transmission of the ranging message.

Claim 24 (Previously Presented): The method according to claim 22, wherein the transmission rate is increased to a value that is sustainable by the channel.

Claim 25 (Previously Presented): The method according to claim 22, wherein the transmission rate is periodically modified by the terminal in response to a change in the characteristics of the channel.

Claims 26-27 (Canceled).

Claim 28 (Previously Presented): The method according to claim 22, further comprising: altering the transmission channel class for load balancing.

Claim 29 (Previously Presented): A computer-readable medium carrying one or more sequences of one or more instructions for ranging in a radio frequency communications system that includes a satellite configured to support two-way communication, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

performing ranging measurements corresponding to a ranging message received from a terminal over a channel associated with a transmission channel class that includes at least one of transmission rate, modulation scheme, and coding scheme;

outputting a ranging response message based upon the ranging measurements, the ranging response being transmitted to the terminal, wherein the terminal selectively modifies the transmission channel class based upon the ranging response; and

transmitting a request to perform re-ranging based upon re-ranging criteria that includes at least one of location of the satellite, and the characteristics of the channel.

Claim 30 (Previously Presented): The computer-readable medium according to claim 29, wherein the terminal stores parameters associated with the transmission of the message over the channel, the parameters including at least one of power information and timing information associated with the ranging transmission of the message.

Claim 31 (Previously Presented): The computer-readable medium according to claim 29, wherein the transmission rate is increased to a value that is sustainable by the channel.

Claim 32 (Previously Presented): The computer-readable medium according to claim 29, wherein the transmission rate is periodically modified by the terminal in response to a change in the characteristics of the channel.

Claims 33-34 (Canceled).

Claim 35 (Previously Presented): The computer-readable medium according to claim 29, wherein the one or more processors further perform the step of:  
altering the transmission channel class for load balancing.

Claim 36 (Currently Amended): A satellite communications system comprising:  
a terminal configured to perform ranging to determine a target transmission rate among a plurality of transmission rates by transmitting a ranging message over a satellite; and  
a hub configured to receive the ranging message and to perform ranging measurements corresponding to the message, the hub outputting a ranging response message that includes ranging parameters, the ranging response being transmitted to the terminal, wherein the terminal adapts the target transmission rate based upon the ranging response, wherein the hub instructs the terminal to perform re-ranging based upon re-ranging criteria that includes at least one of location of the satellite, and the characteristics of the channel, and the satellite supports bi-directional communications, and wherein the hub instructs the terminal to modify the target transmission rate to perform load balancing.

Claim 37 (Previously Presented): The system according to claim 36, wherein the terminal includes memory configured to store the ranging parameters, the parameters including at least one of power information and timing information associated with the transmission of the ranging message.

Claim 38 (Previously Presented): The system according to claim 36, wherein the terminal iteratively transmits the ranging message to determine a maximal transmission rate for the target transmission rate.

Claim 39 (Previously Presented): The system according to claim 36, wherein the transmission rate is periodically modified in response to a change in the characteristics of the channel.

Claims 40-42 (Canceled).